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ONTARIO

FISH AND WILDLIFE MANAGEMENT REPORT

PROVINCE OF ONTARIO

DEPARTMENT OF LANDS AND FORESTS

Division of Fish and Wildlife

(THESE REPORTS ARE FOR INTRA-DEPARTMENTAL INFORMATION AND NOT FOR PUBLICATION)

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LEGAL ASPECTS OF WILDLIFE CONTROL IN ONTARIO *

by
F. A. Walden

Abstract

The right to hunt and to possess game is of increasing interest on the private lands of southern Ontario. Possession is inherent in ownership of the land, as a matter of common law. Constitutionally, regulation of the use of game is a local interest and is therefore the subject of Provincial Legislation. Fisheries are regulated by Federal statute. Control of wildlife is permitted, since the provisions of the Game and Fisheries Act do not apply in defense of property against any animal other than deer, moose or caribou, or against certain unprotected birds. The Migratory Bird Regulations permit protection of crops from waterfowl. Hunters may not enter standing crops without permission of the owner, and trespass is forbidden if a hunter has been warned. The owner, however, must take legal action against a trespasser. Vandalism is a criminal offence. To reduce concentration of hunters in southern Ontario close to urban centres, a township license must be obtained to hunt fox, rabbits or pheasants, and limited numbers of licenses are issued. The use of pesticides is not regulated in relation to wildlife unless intent to kill wildlife is shown. If pesticides deleterious to fish enter a stream, it is an offense under The Fisheries Act (Canada). Careful use of pesticides is a moral responsibility.

Those who dwell upon and work the land bear a relationship to the wildlife resource, rarely equalled in its intimacy, by any other social group. Wildlife is a produce of the land. Its abundance depends upon the fertility of the soil and the way in which the land is used. The importance of wildlife to man has been well known since early times. In its various forms it has provided food, shelter, clothing, industrial products, and recreation, and it has added to the beauty and enjoyment of the landscape, throughout the years. The very existence of wildlife has certain social and legal implications, particularly to the landowner, and some of these will be discussed.

A farmer may have a direct and voluntary interest in that he participates in the harvest of fur or game from his land, and indeed, he may act to improve habitat conditions for such creatures. Or his interest may arise involuntarily, due to that of others in the wildlife resources of his farm.

The relationship of the farmer or landowner, together with certain rights they may possess is of historical interest. The forest or game laws arose with the Feudal System. Hunting has long been esteemed as a sport for kings and those of high rank who bore arms. When England was conquered by the Normans, the King claimed ownership of all the game whether on private lands or not. This was contrary to the rights enjoyed by landowners in Saxon times. When the Great Charter was obtained from King John, a Forest Charter was obtained as well. A charter comprises a statement of rights of the

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people acknowledged by the King. Briefly, the game in the royal forests was reserved for the use of the King, but rights were granted to take game in chase (unenclosed land) or in park (enclosed land). No one could take or kill a beast of chase, namely deer, fox or marten, unless he had a chase or park. Other game, including hares and wildfowl, was considered to be inferior but could be taken on a franchise granted by the Crown which was called free warren. There was an implication in granting these rights that the game would be protected and prosper since the landowner had their sole and exclusive use on his own land. Subsequent Forest Charters have been granted, the last by Henry VIII. The rights expressed have been the subject in detail of many court cases and are now a matter of common law. The right to possess game is inherent in the ownership of the land and there are many decisions recorded respecting the various circumstances in the possession of game and concerning entry upon private lands to take game.

The common law holds in Canada, as it does in England, but traditionally hunting has taken place fully on enclosed and unenclosed lands. However, increasing population, particularly in southern Ontario, is giving rise to new interest in rights of hunting and possessing game.

The first law protecting game in Ontario was passed in 1821. In 1856, a precedent of constitutional importance was established. An act protecting game, passed by the Legislature, stated that this law was made only for Upper Canada and thus the concept that game regulation is of local interest only, was established for Canada. In contrast, the British North America Act indicated that fisheries are of broad interest, and regulations concerning fish and fishing are federal statutes. Fish and game laws are provided to regulate means and quantity of the harvest and to provide for the continuing supply of wildlife resources through application of sound management principles. The statutes of direct interest here, include The Game and Fisheries Act, R.S.O. 1950, The Fisheries Act (Canada) 1932, The Migratory Birds Convention Act, and all amendments to date together with regulations which have been made pursuant to these acts.

In examining the Ontario Game and Fisheries Act as amended year by year from 1895 to the present, it will be seen that changes have been gradual. The principles concerning protection of private property, safety and sportsmanship remain the same; changes in seasons, bag limits and matters of management have developed with increasing knowledge. The traditional concepts derived from the Forest Charter remain, since a farmer or his sons, resident on the land may hunt birds or certain animals, in season on that land, but a royal franchise, better known as a licence, is required to take deer, moose and caribou.

The right inherent in ownership of the land is expressed in Section 7 (4) of the Game and Fisheries Act, but royalties, must be paid as prescribed in Section 28 (1) and the skins of certain animals including beaver, fisher, lynx, marten, mink and otter must be sealed by an officer of the Department of Lands and Forests, as stated in

Section 30. Further, the farmer or his sons cannot extend or transfer the rights which they enjoy, to some other person (Section 63).

The legal aspects of wildlife control are best illustrated by Section 35, which reads as follows:

"Nothing in this Act shall apply to any person taking or destroying any animal other than caribou, deer or moose or any bird, other than eagles, ospreys and vultures and any bird protected by this Act or the Migratory Birds Convention Act (Canada), on his own lands, in defence or preservation of his property by any means at any time, but he shall within ten days report the pelts of furbearing animals in respect of which there is a closed season to the Department and he shall not offer them for sale or barter during the closed season except under a licence and any fur dealer possessing the pelts shall hold the licence and forward it to the Department when applying for a licence to ship them out of Ontario or to dress or tan them."

This Section recognizes that wildlife may from time to time cause damage to property or crops and the landowner is fully authorized to protect his assets by destroying any animal other than deer, moose or caribou and certain protected birds. He should, however, be prepared to prove that damage was sustained.

Members of the deer family, no longer enjoy the status or esteem which accompanies royal prerogative though their popularity with the majority of hunters is not questioned. The reason then, that exception is made lies in the fact that there is no universal open season for hunting deer in Ontario, and to permit the landowner the right to defend his property from the intrusions of deer would lead to many questions as to the propriety of legislation which could readily be abused.

Birds protected by the Game and Fisheries Act are enumerated in Section 37, and include ruffed grouse, spruce partridge, Hungarian partridge, pheasant, sharp-tailed grouse, prairie hen, ptarmigan, quail and wild turkey, if any now exist in Ontario. Of all these, the pheasant is the only one likely to intrude itself in a way damaging to crops or property, but such occasions are sufficiently rare that relief from protection for this bird is not justified.

Wanton destruction of hawks and owls as well as eagles, ospreys and vultures is forbidden, but crows, cowbirds, blackbirds, starlings and house sparrows may be destroyed at any time.

In exercising the right conferred in Section 35, it is evident that the provisions of Section 46 restricting the hours when guns, rifles or firearms may be used, would not apply.

Certain migratory birds, including waterfowl, are known to damage crops upon occasion. Provision for protecting crops is made in The Migratory Bird Regulations. In general, the chief game officer for a province may grant a permit authorizing the killing of migratory birds that are causing or are likely to cause serious damage to crops or other interests in particular areas.

Wolves and bears are not protected and may be killed at any time of the year. A bounty is payable by the Province in respect of wolves killed anywhere, and for bears killed in agricultural townships within certain counties.

Under the common law, no redress is made by the Crown for damage attributed to game which is the property of the Crown.

Some hunters seem to assume that possession of a hunting licence conveys privilege with respect to private lands, although it is stated clearly on the licence that such is not the case.

The Game and Fisheries Act deals with this specifically as follows:

Section 62. - (1) No person with any sporting implement or fishing rod or tackle in his possession, shall enter or allow any dog to enter into any growing or standing grain or any other crop, whether of the same kind or not, without the permission of the owner.

(1a) No person in a party of more than twelve persons shall hunt or attempt to hunt or with any gun or sporting implement enter upon any enclosed or unenclosed land in a county without the written permission of the owner or a person authorized by the owner to give such permission.

(4) Nothing in this section limits or in any way affects the remedy at common law of an owner for trespass.

Section 62. - (2) No person shall hunt or fish or with any gun or sporting implement, fishing rod or tackle in his possession go upon any enclosed or unenclosed land or water after he has had notice not to hunt or fish thereon by the owner either by word of mouth, in writing or by posters or signboards so placed that they may be observed from any point of access to the land.

(4) Nothing in this section limits or in any way affects the remedy at common law of an owner for trespass.

(5) Every person found contravening subsection 2 may be apprehended without warrant by any peace officer or by the owner of the land on which the contravention takes place, or by the servant of, or any person authorized by, such owner, and be taken forthwith to the nearest justice of the peace to be dealt with according to law.

Several principles are noteworthy here. Firstly, there is the complete exclusion of the sportsman from standing crops unless he has permission to enter. Secondly, large parties of hunters are excluded from private lands. Thirdly, and of great importance, is the onus upon the landowner to protect his own land from trespass, and Section 6 (6a) purposely excludes protection of private property from the duties of a Conservation Officer. Finally, the right is given for

the landowner or his employee to arrest and bring the trespasser before a justice of the peace. In this respect The Game and Fisheries Act provides more strength than the Petty Trespass Act.

It is recognized that all hunting and hunters are affected by acts of vandalism and the destruction of livestock and property which is committed by some hunters. These are criminal acts, and the Department of Lands and Forests does not administer the criminal code. It is impossible to deal with crime of this kind by juggling laws dealing primarily with game and fish.

All such cases should be reported to the police immediately, whether the offenders are known or not. Our Conservation Officers would like to know of the circumstances too. The record of reported cases of vandalism and destruction shows that these acts are rare, or are all the cases reported?

Many violations of the Criminal Code committed by hunters are not indictable, and it will be found the police encourage the victim to lay the charge, since whoever lays the charge must bear the costs if the case is lost. Farmers are certainly interested in the growing concern expressed by the legal profession that court costs influence justice. Notwithstanding, the Criminal Code and The Game and Fisheries Act provide the means for protecting private property. In Britain and Europe, where there is really tight control over hunting and fishing on private property, there are no Conservation Officers paid from the public account. Public hunting is a public charge, no matter where it takes place. Privately ordered hunting or lack of it, is not.

In certain townships, hunting for foxes, rabbits and pheasants is regulated, pursuant to Section 24a of the Act, by means of a township licence. It is essential that the township enter into an agreement with the Department and that they make licences available if the requirement that hunters have a township licence is to be met. An attempt to prevent hunting, by failure to supply licences, would infer that hunting was not restricted in such a township. The obvious great benefit of this licence system is that it limits the concentration of hunters in townships adjacent to the large urban municipalities, and spreads the hunting pressure over a wide area.

The use of pesticides is related directly to wildlife management. However, Section 45 of the Game and Fisheries Act, which prohibits the use of poison to take game, would not apply in the event that wildlife was killed by means of what is commonly accepted as a pesticide, unless intent could be shown. One might presume, however, that should protected animals or birds suffer unduly due to excessive or negligent use of pesticides, legislation would be sought to alleviate the condition.

Cases are known where rotenone, used in warble fly control, has entered streams during clean-up of equipment. Rotenone is highly poisonous to fish, as well as to other cold-blooded creatures, and speckled trout were lost in the streams, as a result.

The act of permitting rotenone, or any substance deleterious to fish to enter a stream is an offence under the Fisheries Act. Similarly, where poisonous substances are used under the Pesticides Act, to fumigate mills or other buildings adjacent to streams or lakes, precautions must be taken to prevent their escape, since failure to do so would be contrary to the Fisheries Act and would imply failure to comply with the Regulations under The Pesticide Act.

The principles of legal controls respecting wildlife include certain rights which go with ownership of the land respecting use of game. Prevention of trespass is provided for, but the onus of prevention is upon the owner of the land. The duty of the Conservation Officer is to promote the public interest, and he is enjoined not to assume responsibility for private property. Any person may defend his land from damage due to game animals, excluding deer, moose, caribou, and from migratory birds with permission. Game birds, protected by the Ontario Game and Fisheries Act are unlikely to do damage, though in the event that pheasants persist in doing damage, the matter should be referred to an officer of the Department of Lands and Forests. Direct action against the birds is illegal. Congestion of pheasant hunters is discouraged by the township licence system.

While no legislation is directly related to preventing damage to wildlife by pesticides, there is a moral responsibility to exercise care in their use. Damage to fish through escape of pesticides into public waters is an offence against the Fisheries Act. The Pesticides Act and Regulations provides for broad standards of care in the use of pesticides.

I am indebted to Dr. C. H. D. Clarke for his kind assistance in preparation of this paper. The shortcomings and omissions are my own.

MID-WINTER WATERFOWL INVENTORY, ONTARIO, 1960.

compiled by
G. F. Boyer

Abstract

The coverage for the January Midwinter Waterfowl Inventory in Ontario was the same as in previous years. Ontario Department of Lands and Forests personnel again aided by taking aerial counts. Adverse flying conditions caused a delay of several days and counts were not completed until January 20. A table showing numbers of the various species seen and the area in which they were found is given. This year's total of 70,844 waterfowl is compared with 64,880 for 1959 and 90,161 for 1958.

The coverage was the same as in previous years. Ground counts were made by voluntary co-operators and aerial coverage was obtained by a Beaver Aircraft of the Ontario Department of Lands and Forests with personnel from Kemptville, Tweed and Aylmer Forest Districts taking part.

Weather and Water Conditions

Poor flying conditions were in part responsible for a delay of several days in obtaining aerial coverage. Unfortunately this delay was further increased by a delay in getting instructions out to the field crews on time. The aerial counts in eastern Ontario were completed on January 19th when visibility was good with a slight overcast. Snow storms in the western part of the province prevented the count from being completed on the 19th, so in this area it was not finished until the following day.

In the Kemptville District the only large spaces of open water were at Ivy Lea bridge and Prescott. Elsewhere open water was restricted to a few "Pot holes." The Bay of Quinte was frozen over as were most of the waters of the St. Lawrence River in the Tweed District except the off shore waters off Wolfe Island. On Lake Ontario the off shore waters along the south and south-west end of Prince Edward Co. were mostly open. Most of the ducks in the Tweed District were in the vicinity of Wolfe Island.

In the Lake Erie District there was pack ice along the shores of Lake Ontario and Lake Erie and Lake Huron was mostly frozen over as was Lake St. Clair. There was open water at the lake at Rondeau and east of Point Pelee. The Detroit and St. Clair Rivers were mostly open.

Areas Covered

(a) Aerial

1 (a) St. Lawrence River Howe Island to ten miles east of Cornwall
(b) Lake Ontario and St. Lawrence River in vicinity of Prince Edward County and Wolfe Island.

2 Lake Ontario Hamilton to Niagara on the Lake; Niagara River; Long Point Port Stanly; Rondeau to Amherstberg; Detroit River (Amherstberg to Lake St. Clair); Lake St. Clair; St. Clair River to Point Edward; Point Edward to Long Road.

(b) Ground

3 St. Lawrence between Prescott and Ivy Lea

4 Lake Ontario - Oshawa to Bowmanville

5 Lake Ontario - Toronto Harbour and Lake Shore from Whitby to Bronte; Humber and Don Rivers.

6 Hamilton Harbour, Dundas Marsh and Lake Ontario from Stoney Creek to Bronte.

7 East River Road to 3/4 mile south of Galt

8 Federal Migratory Bird Sanctuary at Guelph.

9 Grand River from Brantford to Galt.

10 Jack Miner Bird Sanctuary

11 Sarnia Bay, Lake Huron Shore at Point Edward, St. Clair River south to Sombra.

The results of the 1960 mid-winter inventory by species and area:

TABLE I - Mid-winter Inventory, 1960.

Species	Area Covered												Total
	1 (a)	1 (b)	2	3	4	5	6	7	8	9	10	11	
Swan	-	-	17	-	-	-	-	-	-	-	-	-	17
Canada Goose	-	-	400	-	-	-	-	-	-	-	4,000	-	4,400
Brant	-	-	-	-	-	3	-	-	-	-	-	-	3
Mallard	2	2	212	100	-	781	93	10	13	8	200	4	1,425
Black Duck	241	171	2,704	100	-	1,553	65	166	35	107	500	50	5,492
Gadwall	-	-	-	-	-	1	-	-	-	-	-	-	1
Ringneck	5	468	-	-	-	1	1	-	-	-	-	-	475
Scaup	664	7,455	21	-	-	7,768	81	-	-	-	-	171	16,160
Redhead	-	-	1,167	-	-	5	2	-	-	-	-	-	1,174
Canvasback	-	27	1,732	100	-	1	3	-	-	-	-	400	2,263
Goldeneye	449	2,020	3,968	700	21	597	490	1	1	15	-	250	8,562
Bufflehead	20	660	-	-	-	92	85	-	-	-	-	2	859
Old Squaw	-	3,900	6	-	16	11,886	15	-	-	-	-	15	15,838
Wood Duck	-	-	-	-	-	-	-	-	-	-	12	-	12
Scoter	-	305	-	-	14	1	1	-	-	-	-	-	321
King Eider	-	-	-	-	-	1	1	-	-	-	-	-	2
Green-winged Teal	-	-	-	-	-	1	-	-	-	-	-	-	1
Merganser	1,068	-	85	900	-	96	600	16	1	4	-	3,000	6,020
Hooded Merganser	-	-	-	-	-	-	-	-	1	-	-	-	1
Unidentified	88	2,385	5,309	-	-	1	-	-	40	-	-	-	7,718
TOTAL													70,844

TABLE II - Comparison of 1960 Inventory With 1958 and 1959.

Species	1958	1959	1960
Whistling Swan	-	15	17
Canada Goose	2,800	2,000	4,400
Blue Goose	20	-	-
Brant	-	-	3
Mallard	3,229	1,323	1,425
Black Duck	6,247	11,242	5,492
Gadwall	-	-	1
Ringneck	-	200	475
Scaup	18,499	23,081	16,160
Redhead	-	713	1,174
Canvasback	27,703	4,513	2,263
Goldeneye	12,854	8,159	8,562
Bufflehead	617	135	859
Old Squaw	10,088	3,102	15,838
Wood Duck	50	25	12
Scoter	30	50	321
King Eider	2	-	2
Green-winged Teal	-	-	1
Merganser	232	1,520	6,020
Hooded Merganser	-	-	1
Harlequin	2	4	-
Unidentified	7,788	8,798	7,718
TOTAL	90,161	64,880	70,844

SUMMARY OF FALL, SPRING AND SUMMER GOOSE AND DUCK KILLS IN THE MOOSONEE DIVISION, 1959

by
A. Gagnon

Abstract

Lands and Forests Officers and RCMP personnel collected data on the kill of geese and ducks from hunters and Indian families in the James Bay area of the Moosonee Division during 1959. Checking stations were established at the mouth of the Moose River, North Bluff, Fort Albany and Hannah Bay. A total of 1345 hunters killed 17,133 geese and ducks. Waterfowl kills by Indian families during the fall of 1958 and spring of 1959 was 31,189. Statistics comparing kills of Blue-Snow and Canada Geese and ducks for the past three years are given.

Statistics were taken from the check stations at the mouth of the Moose River, Len Hughes' Camp, Fort Albany, Bill Anderson Fort Albany, James Bay Goose Club at North Bluff, 22 miles along the west coast from Moosonee and Ontario Northland Goose Camp, Hannah Bay, approximately 50 miles east of Moosonee along the east coast; also data collected from the Indian families for their fall, spring and summer kills in Patricia East portion.

This year's data were collected similar to last year's. Such as; the hunter's name, address, license number, species and number of kills.

Patrol activities and collection of data from the hunters and Indian families at the two check stations were carried out by Lands and Forests personnel. Statistics from the licensed hunting camps were collected by the R.C.M.P. personnel.

Lindy Louttit, Ranger and the writer collected data from all the Indian families from Lake River, Attawapiskat, Fort Albany, Moose Factory and Moosonee areas for the fall, spring and summer kills. Data from each individual Indian were sent to Maple and District Office with the annual report. A summary of the kills is included in this report.

Sanctuary

The Moose River Bird Sanctuary at the mouth of the Moose River which consists of two locations; one part being on Shipsand Island on the west shore and one on the east shore, from the mouth of the Moose River to Partridge Creek. Both parts consist of approximately 3600 acres. The establishment of the sanctuary to improve the

hunting for the Indians paid off to quite a percentage, especially on the goose kills.

Sanctuary was established in January 1958.

Number of Kills for the Past Three Years, Moose River Check Station.

			Fall	Blue-Snow Geese	Canada Geese	Ducks
Number of hunters	-	809	1957	3504	124	1567
American hunters	7%	944	1958	7821	166	1329
American hunters	8%	1034	1959	11557	204	1482
O.N.R. Hannah Bay						
Number of hunters	-	131	1957	1136	31	568
American hunters	90%	95	1958	1185	10	228
American hunters	78%	101	1959	924	20	219
James Bay Goose Club						
Number of hunters	-	85	1957	562	10	113
American hunters	40%	63	1958	797	10	122
American hunters	40%	68	1959	735	13	166
Len Hughes, Fort Albany						
Number of hunters	-	107	1957	1038	36	72
American hunters	80%	97	1958	1142	11	81
American hunters	81%	101	1959	1039	17	219
B. Andreson, Fort Albany						
Number of hunters	-	53	-	-	-	-
American hunters	33%	-	1958	370	8	18
American hunters	51%	41	1959	459	11	68

A rough estimate on the birds not accounted for, such as eaten in the field, lost, etc. during the goose hunt was approximately 1,000 birds. These have not been included in this report.

Weather

Weather conditions for the past three years for goose hunting were as follows: Seasons - 1957 fair
1958 good
1959 good

Patrols

Goose patrols were carried out extensively by the Dept. staff this fall as the R.C.M.P. did not have the help and equipment required as in previous years.

Convictions

There were only two charges laid this past fall. Both charges were laid to Treaty Indians, one being gainfully employed. Charges were laid for hunting and having in their possession geese and ducks on the sanctuary. Both parties concerned were found guilty. There were a few minor infractions which were settled in the field. As a whole the hunting regulations were observed by the outside hunters and local people to a degree that satisfied the enforcement staff.

Indian Family Waterfowl Kills In Patricia East Portion For Fall, Spring and Summer

Summer and Fall of 1958, Spring of 1959.

	Moosonee		Fort Albany		Attawapiskat		
	Fall	Spring	Fall	Spring	Fall	Spring	Total
Canada Geese	104	1963	1104	2205	547	2909	8832
Blue-Snow Geese	1686	1075	4278	1483	5054	2868	16444
Ducks	489	419	1128	670	2643	564	5913
							31189

Check Stations and License Camps Total Kill for 1959

Number of Hunters 1345

Canada Geese	265
Blue-Snow Geese	14714
Ducks	2154
TOTAL	17133
GRAND TOTAL	48322

REPORT OF THE 1959 PHEASANT SEASON IN THE REGULATED TOWNSHIPS OF THE LAKE SIMCOE DISTRICT

by
J. S. Dorland

Abstract

A lengthened open season for pheasants was provided in the 16 Regulated Townships of Lake Simcoe District. A field check of 1700 hunters revealed a harvest of 780 pheasants in 4100 man-hours of hunting for an average of .44 pheasants per hunter. Some 14,540 day-old and poult pheasants had been provided for stocking by the Department of which 1833 were banded and released in Whitchurch and Pickering Townships. Of the total kill in Whitchurch Township 51 per cent were banded birds. Figures are given to show that costs per banded bird harvested was $14.82. Hunting pressure as indicated by the purchase of township licences increased by approximately 1700 over the previous year.

This year the Regulated Townships in the District experienced their first year of any lengthy open season for pheasants. Of the 16 Regulated Townships, half enjoyed an open season of 16 days and the remainder 10 days. The majority of the hunting was confined to the 10 lower townships where our officers contacted some 1700 hunters who harvested 780 pheasants in some 4100 man-hours of hunting for an average of .44 pheasants per hunter.

Few sunny days greeted the hunter with the majority of the days being overcast, cool with occasional drizzle turning into heavy rain. Previous to the open season the Department provided the Regulated Townships with 14,540 day-old and poult pheasants for release within the Townships (see chart #2). Prior to the release of these pheasants 1833 were leg banded and released in two of the Regulated Townships, Whitchurch and Pickering (see chart #3). At the close of the open season figures gathered from Township Authorities and Game Commissions show that some 6000 hunters had purchased township licences (see chart #4) an increase over the previous year of approximately 1700 licences.

Results of the Open Season, 1959

Number of Regulated Townships checked	10
Number of hunting parties checked	700
Number of parties using dogs	382
Number of hunters checked	1769
Number of man-hours hunted	4105
Cock birds seen	1105
Hen birds seen	859
Cock birds harvested	529
Hen birds harvested	251
Total birds harvested	780
Birds per hunter	.44
Man-hours hunted per bird	5.1
Percentage of banded birds recovered in Whitchurch	10.3%
Percentage of total kill in Whitchurch that was banded	51%

For a break-down of figures per township see Chart #1.

Remarks

Best results to the hunter were obtained in the Townships of East Whitby and King where the average success per hunter was .58 pheasants or one pheasant for four hours of hunting. Close to half of the pheasants shot this year were hens, however, it added little to the harvest per hunter which still remains very poor throughout the District.

Nil reports on pheasant harvest were received from the Townships of Adjala, Tecumseth, West Gwillimbury, East Gwillimbury, Albion and Toronto Gore, where it must be concluded that the pheasant density is very small and the areas lightly hunted.

The extended season this year, besides spreading the hunting out added very little to the average hunter's bag, although more dogs were in use than in previous years. It must be said however, that the ardent hunter who hunts with a dog seldom comes home without a bird.

CHART #1

Township	No. of Parties	Parties Using Dogs	No. of Hunters	Man Hours Hunted	Birds Seen		Birds Shot		Total Birds Shot	Birds Per Hunter	Man-Hrs. Per Pheasant
					Cocks	Hens	Cocks	Hens			
Whitby	60	40	154	429	74	47	50	18	68	.44	6.3
E. Whitby	41	36	135	283	155	101	70	16	86	.64	3.4
Pickering	56	45	149	230	80	51	41	16	57	.38	4.0
Markham	189	95	516	767	137	122	87	51	138	.26	5.5
Whitchurch	75	36	167	511	238	166	82	41	123	.73	4.0
Vaughan	36	10	87	364	54	62	20	15	35	.40	1.4
King	36	16	91	251	68	56	34	11	45	.49	5.6
Caledon	13	5	27	57	28	25	10	9	19	.70	3.0
Toronto	130	71	310	814	212	167	101	49	150	.48	2.0
Chinguacousy	64	28	133	399	69	62	34	25	59	.44	2.3
	700	382	1769	4105	1115	859	529	251	780		

Banded birds shot - 63 (all in Whitchurch Township, this is a 10.3% recovery of birds planted)

Number of days open season - 10 - Whitby, E. Whitby, Pickering, King, Vaughan, Whitchurch Markham and E. Gwillimbury.

Number of days open season - 16 - Adjala, Tecumseth, W. Gwillimbury, Caledon, Albion, Toronto, Chinguacousy and Toronto Gore.

CHART #2 - Pheasant Distribution - Lake Simcoe District, 1959

Township	Day Olds	Poults	Adults	Total
Whitby	700	700	20	1420
East Whitby	900	1000	20	1920
Pickering	1000	1100	20	2120
Markham	500	500	20	1020
Whitchurch	800	1000	20	1820
Vaughan	1000	1000	20	2020
King	500	900	20	1420
Peel County	1000	1100	20	2120
Adjala	-	150	6	156
Tecumseth	-	150	6	156
West Gwillimbury	50	150	6	206
East Gwillimbury	-	150	12	162
Barrie Sportsmen	350	100	-	450
Stayner Sportsmen	200	-	-	200
Miscellaneous	-	100	10	110
TOTAL	7000	8100	200	15300

CHART #3 - Pheasants Banded - In the Regulated Townships, Lake Simcoe District, 1959.

Number Banded	Number Used	Townships Released In
733	LS 1-LS 733	Whitchurch
1000	LS 1001-LS 2000	Whitchurch
100	LS 901-LS 1000	Pickering

Total pheasants banded and released - 1833.

CHART #4 - Township Licences Issued Up To and Including Oct. 31, 1959

	Issuers	Non-resident	Resident Licences
Whitby		339	231
E. Whitby		-	-
Pickering		415	468
Markham		1095	395
Whitchurch		256	232
Vaughan		185	208
King		424	246
Caledon		58	87
Albion		201	42
Chinquacousy		226	130
Toronto Gore		93	12
Toronto		200	421
E. Gwillimbury		70	92
W. Gwillimbury		72	74
Tecumseth		159	63
Adjala		34	19
TOTAL		3827	2720

Costs of Planting Banded Pheasants In Whitchurch Township and Cost of a Banded Pheasant Harvested - 1959

Provincial costs of raising and delivering pheasants chicks and poults to township -

800 day-olds @ .48	-	$ 384.00
1000 poults @ $1.57	-	$1570.00
TOTAL		$1954.00

Township costs of raising 733 day-old to poults	-	$ 360.00
Township costs of raising 200 poults to near adults	-	$ 176.00
TOTAL		$ 536.00

Total costs for releasing 1733 banded pheasants	-	$2490.00

Total township licences issued to October 31, 1959	-	488
94% of licencee's hunted pheasants or		459
Hunter success - .74 pheasants	-	
Total estimated pheasants harvested	-	338
50.1% of recorded harvest were banded birds or	-	169
Costs per banded bird harvested	-	$ 14.82

MOURNING DOVE ROAD COUNTS, LAKE ERIE DISTRICT, 1958-59

by
L. J. Stock

Abstract

Detailed statistics are presented of roadside counts of Mourning Doves in Lake Erie District during the past two years. Results showed 22 doves per 100 miles in 1958 compared with 26 per 100 miles in 1959. A summary for the past four years is given.

Mourning Dove Random Road Counts for 1958-59 are presented in detail with a condensed summary for the past four years.

Please note that the high count for 1956 was due largely to two large flocks in Norfolk County, which accounted for approximately one-half of the total.

Statistics for the Mourning Dove Road Counts
Lake Erie District, 1958

	Number of Doves Seen								
	In Flocks 3 or More		Pairs		Singles				
Month	No.	%	No.	%	No.	%	Total Count	Total Miles	Doves Per 100 Miles
April	-	-	4	100	-	-	4	25	16
May	116	17	256	36	322	47	704	5252	13
June	137	16	350	41	379	43	866	5198	17
July	74	19	184	47	134	34	392	2898	14
August	428	39	388	35	287	26	1103	3845	29
September	902	55	374	23	371	22	1647	4237	39
October	6	13	22	49	17	38	45	309	15
District Totals	1663	35	1578	33	1520	32	4761	21764	22
Pelee Is. July	12	8	38	28	88	64	138	288	48

Statistics for the Mourning Dove Road Counts
Lake Erie District, 1959

Month	Number of Doves Seen: In Flocks 3 or More No.	%	Pairs No.	%	Singles No.	%	Total Count	Total Miles	Doves Per 100 Miles
April	-	-	2	67	1	33	3	34	9
May	59	8	302	42	355	50	715	4406	16
June	76	12	176	29	359	59	611	3116	20
July	173	22	250	33	347	45	770	1826	42
August	100	12	284	33	470	55	854	2832	30
September	183	47	76	19	132	34	391	617	63
District Totals	591	18	1090	32	1664	50	3344	12831	26
Pelee Is. July	4	4	26	29	59	66	89	117	76

Summary For the Past Four Years Entire District

	Number of Doves Seen: In Flocks 3 or More No.	%	Pairs No.	%	Singles No.	%	Total Count	Total Miles	Doves Per 100 Miles
1956 (Sept. only)	2852	79	404	11	373	10	3629	5124	70.5
1957 (May-Sept.)	429	29	252	34	553	37	1486	8174	18
1958 (Apr.-Oct.)	1663	35	1578	33	1529	32	4761	21764	22
1959 (Apr.-Sept.)	591	18	1090	32	1664	50	3344	12831	26
Pelee Island (July only)									
1957	34	21	20	24	91	55	165	119	139
1958	12	8	38	28	88	64	138	288	48
1959	4	4	26	29	59	66	89	117	76

CARIBOU HUNTER INTERVIEWS IN PATRICIA CENTRAL AND PATRICIA WEST, 1959

by
D. W. Simkin

Abstract

In order to obtain much needed information on woodland caribou biology a questionnaire was filled out by Department Officers for every native caribou hunter contacted at the annual spring trappers' meetings in 1959. Forty-three caribou hunters killed 141 caribou (75 adult males, 51 adult females, 11 male calves and 4 female calves). If the sex ratio of the kill is indicative of the sex ratio of the herd a possible explanation for the low rate of reproduction in woodland caribou might be evident. There does not appear to be any selection made on the part of the hunter when he encounters more than one caribou. The bulk of the kill is made in November, December, March and April. It has been well established that the large stags shed their antlers from late November to mid-January. Most hunters agree that most caribou herds are made up of males and females travelling together and the proximity to the rutting season has much to do with herd formation and composition. Most caribou herds confine themselves to little movement during the winter. A definite spring and fall movement has been observed in most areas inhabited by caribou. It appears that caribou are more plentiful now than they have been for 30 or more years throughout Patricia Central and Patricia West. Wolf predation on caribou appears to be very low, however, when a herd is attacked, multiple kills may occur.

At the annual spring trappers' meetings in 1959 a questionnaire was filled out by Department Officers for every native contacted who had shot one or more caribou in the previous year. The purpose of this questionnaire was to collect much needed additional information on woodland caribou biology.

This report is an attempt to analyze the questions answered.

Because of language difficulties and lack of knowledge of certain topics in the questionnaire on the part of some trappers, all questions were not answered on each questionnaire.

A total of 43 trappers were interviewed hence 43 questionnaires were filled out as completely as possible.

Analysis

I Total Caribou Kill By 43 Indian Trappers

(a) Forty-three caribou hunters killed 141 caribou. Number of caribou per hunter -3.28.

(b) The sex and age composition of the killed animals was 75 adult males, 51 adult females, 11 male calves, 4 female calves.

Overall sex ratio was therefore 86 males : 55 females or 156 males : 100 females.

Adult sex ratio was 75 adult males : 51 adult females or 147 males : 100 females.

This disproportionate sex ratio in favour of males if representative of the actual sex ratio of the herd might account for the very slow rate of reproduction in woodland caribou.

II Hunter Selection

Forty-one hunters answered the questions on selection of animals in the herds. Forty stated that they did not care what they shot and that they made no selection between stags and does or adults and calves.

One hunter stated that he tried to shoot the young animals if the herd was small and old animals if the herd was large. (Perhaps he considered this practice a conservation measure).

If the hunters were correct in stating that they do not make any selection we should assume that the sex and age ratios of the kill is representative of the herds. Thus there is a very unfavourable sex ratio and reproduction is very low.

It is possible, however, that they unconsciously select the larger animals. This would account for the large proportion of adult males and the small proportion of does and calves in the kill. The preponderance of males in the calf kill does suggest that an unbalanced sex ratio might exist.

III Temporal Distribution of the Kill in Monthly Periods

TABLE I -

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Aug.	Total
6	18	22	12	16	23	32	3	2	4	138

It is possible that the high proportion of kill in early winter (Nov. Dec.) and late spring (March, April) is merely an indication of when the hunters are most active on their trap-lines. However, Table II shows that there is an increase in group size from October through to April.

It is my feeling that caribou bands tend to disperse either just before or just after calving time and that they remain dispersed until the rut, which is probably in mid October or early November. After that time the rutting groups tend to travel together until the spring when they again disperse.

TABLE II - To Show Change In Herd Size Throughout Year & Its Effect On Hunting.

June		August		October		November		December	
No. Shot	No. Seen	No. Shot	No. Seen	No. Shot	No. Seen	No. Shot	No. Seen	No. Shot	No. Seen
1	1	1	1	2	5	2	2	1	2
-	-	1	1	3	6	1	1	1	7
-	-	1	1	3	7	2	30	1	3
-	-	1	1	-	-	4	5	1	8
-	-	-	-	-	-	1	1	2	7
-	-	-	-	-	-	3	15	6	6
-	-	-	-	-	-	2	2	4	30
-	-	-	-	-	-	-	-	3	12
-	-	-	-	-	-	-	-	6	30
-	-	-	-	-	-	-	-	6	40
1	1	4	4	8	18	15	56	31	145
Av. No./ group 1		Av. No./ group 1		Av. No./ group 6		Av. No./ group 8		Av. No./ group 14.5	

January		February		March		April		May	
No. Shot	No. Seen	No. Shot	No. Seen	No. Shot	No. Seen	No. Shot	No. Seen	No. Shot	No. Seen
3	10	5	10±	1	6	2	3	2	2
1	8	1	20-25	2	7	2	9	1	1
1	2	1	7	2	3	4	10	-	-
7	14	1	6	2	9	5	10	-	-
-	-	4	40	2	3	1	6	-	-
-	-	-	-	3	30	1	1	-	-
-	-	-	-	3	10	3	15	-	-
-	-	-	-	3	3	2	5	-	-
-	-	-	-	-	-	2	6	-	-
-	-	-	-	-	-	10	11	-	-
12	34	12	83±	18	71	32	76	3	3
Av. No./ group 8.75		Av. No./ group 16.5±		Av. No./ group 8.9		Av. No./ group 7.6		Av. No./ group 1.5	

No doubt the larger the herd the greater the chance of making a kill.

IV Time of Shedding Antlers

Hunters were questioned on this matter to establish whether a winter season for trophy caribou would be feasible. There appears to be some variation as to time of shedding but as a rule the large stags seem to loose their antlers in December and early January.

Twenty-eight hunters stated that they start to see stags without antlers in December and January. One hunter stated that he has seen stags without antlers in October and November. One hunter stated that the old and weak carry their antlers until spring. (This of course is characteristic of cervids).

Six recordings from stags shot and reported are worth reporting here to verify the above December - January shedding time.

i Stag with only one antler, shot on December 22nd.
ii Stag with large antlers, shot on January 15th.
iii Stag with antlers, shot on November 5th.
iv Stag with antlers, shot December 17th.
v Stag without antlers, shot December 17th.
vi Stag with antlers, shot December 7th.

From the above it would appear that a trophy season for caribou where a large number of licences were to be issued would yield more trophies if it were held in November or December. However, freeze-up cannot be expected much before mid December in most years, hence aircraft hunting would be restricted to the period commencing no earlier than December 7th.

It is possible that a small season (i.e. few licences (75-100) might yield a sufficient number of trophy heads after mid December to satisfy licence holders.

V Herd Composition

(a) Nineteen of 22 hunters answering the questionnaire stated that they had often seen herds of males and females mixed.

(b) Seven of 18 hunters stated that they see herds of does and calves. These herds were reported to be from 3-4 to 10-15 in size. Eleven hunters stated that they never see aggregations of does and calves alone.

(c) Eleven of 15 hunters reported that they see herds of stags travelling together. These herds are reported to vary in size from 2-3 to 15. One herd of 14 was seen in November.

As we have no data available on what time of the year most of the observations were made the information is not too useful. However we will attempt to clarify these points the next time the trappers are contacted.

I do believe, however, that data of this type will have much value in assisting us to understand the behaviour of this most interesting species.

VI Winter Movements

Twenty-five trappers answered the questions pertaining to winter travel. Seventeen stated that the caribou did not travel at all during the winter. Eight others stated that they did travel considerably. These reports of winter travel vary from two miles per day to a regular circuit in a 100 mile circle.

Obviously these movements will vary considerably from one area to another and further questioning and field work must be done to evaluate the answers given.

VII Seasonal Movements

Twenty-two of 23 hunters stated that there were definite seasonal movements in the caribou bands which they hunted. Twelve of the 20 stated that the movement was a fall and spring phenomenon.

One trapper stated that he believed cold weather restricted movements. Two trappers said the herds came together in the fall and spread out in the spring into the muskeg. Michel Hunter, the chief at Winisk, and a very good hunter, said that the coastal caribou move out to the coast in April or March and move back to the timber in December depending on early or late freeze up.

One trapper who was on his trap-line last January when we were surveying the area from Fort Severn west to the Manitoba border (where considerable summer sign was seen) said that the caribou had moved out of that summer area over into the timbered area in Manitoba.

Strangely enough the three hunters who stated there was no seasonal movement of caribou were from Pikangikum. It is possible that the animals in that area do not need to travel far from summer to winter range. (This has been noticed in the Old Caribou Preserve and in the Cliff Lake herds).

This spring when interviewing these trappers we will attempt to describe the movements on a map. This might clarify the situation.

VIII When Were Caribou Most Abundant?

Forty hunters answered this question. Thirty-four said that they are more abundant right now than they have been. Two said 30 years ago, two said 40 years ago and one said simply long ago. Another said they are as abundant now as they were at their peak about 20 years ago.

Obviously the natives believe caribou are increasing in numbers.

IX Wolf Predation

All hunters answered the questions pertaining to wolf predation. Three of the 43 reported seeing a total of six wolf-killed caribou 1, 1, and 4.

Apparently wolves prey very little on the caribou herds in the north.

Summary

(1) Forty-three caribou hunters were contacted in the spring of 1959. They had killed 143 caribou (75 adult males, 51 adult females, 11 male calves, and 4 female calves.

(2) If the sex ratio of the kill is indicative of the sex ratio of the herd a possible explanation for the low rate of reproduction in woodland caribou might be evident.

(3) There does not appear to be any selection made on the part of the hunter when he encounters more than one caribou in the bush. It is possible that the hunters unconsciously select larger animals. This would explain the preponderence of males in the kill.

(4) The bulk of the kill is made in the months of November and December, and March and April. One possible explanation for this is that it is at this time of the year when trappers are most actively engaged in the field. Another is that at this time of the year caribou exhibit their gregariousness to the greatest degree.

(5) It has been well established that the large stags shed their antlers from late November to mid January.

(6) Most hunters agree that most caribou herds are made up of males and females travelling together.

Few herds of does and calves were reported but observations of herds of stags were more common.

It is felt that the proximity to rutting season has much to do with herd formation and composition.

(7) Apparently most caribou herds confine themselves to little movement during the winter.

(8) A definite spring and fall movement has been observed in most areas inhabited by caribou. Further more intensive questioning this summer should reveal the direction and extent of these movements.

(9) It appears that caribou are more plentiful now than they have been for 30 or more years throughout Patricia Central and Patricia West.

(10) Wolf predation on caribou appears to be very low, however, when a herd is attacked, multiple kills may occur.

Acknowledgments

The bulk of the data here reported was gathered by Conservation Officers Sayers, Currie, Milko, Stone, and Toews at the spring trappers meetings. They are to be commended for questioning the Indians as thoroughly as they did.

THE DESIRABILITY OF CHEMICAL EVALUATION OF LAKES IN ONTARIO

by
R. A. Ryder

Abstract

It was felt that chemical analyses of waters in Ontario could be utilized to advantage to establish indices of lake productivity. Possible methods and costs for obtaining such indices are discussed. The application of the chemical analysis of waters as presently successfully employed by Minnesota could be modified to meet the needs of the Patricia Inventory with only those indices related directly to fish production being retained. Water quality as expressed in terms of total alkalinity, and water fertility, expressed as total phosphorus were believed two of the best indices of lake productivity we have today. Once these indices are established it would be possible to predict pounds per acre sustainable harvest rate of a standing crop of fishes provided four other variables are calculated - lake morphometry, species composition, length of growing season and success of spawning.

At a recent meeting of the Patricia Inventory Group, the suggestion was made that chemical analyses be utilized to establish indices of lake productivity in Northern Ontario. Chemical analyses of waters have long been neglected in Ontario, and only rarely have determinations beyond oxygen concentrations and pH been estimated. The value of the latter determination is questionable except that it sometimes serves as an undependable indicator of total alkalinity or shows the possible existence of pollution.

In order to better assess the value of chemical water analysis as expressed in terms of lake productivity, the author, together with Messrs. J. M. Fraser and K. H. Loftus, visited Dr. John B. Moyle, Supervisor of the Bureau of Research and Planning of the Minnesota Conservation Department. Dr. Moyle has long been recognized as one of the leaders in applying chemical analyses of waters to the productivity of lakes in terms of fish or waterfowl. It was hoped that his methods as expressed in Moyle (1949) and Moyle (1956) could be condensed and the most suitable devices applied to the Patricia Inventory as found practicable.

The principal chemical analyses made in Minnesota, aside from oxygen concentrations, have been total alkalinity, sulphate ion, chloride ion, total phosphorus, and total nitrogen. Total phosphorus

was sometimes broken down further and evaluated as organic phosphorus and phosphate phosphorus. Total nitrogen was also evaluated for its component parts in terms of ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, and organic nitrogen. Other elements such as iron and manganese occasionally entered into water analyses, but no correlation has yet been drawn up to demonstrate to what extent they affect lake productivity. Water analyses for pH and free carbon dioxide have been discontinued in Minnesota routine lake surveys because of the extreme and rapid fluctuations of both in a brief period of time and in short distances between stations.

In order to keep the Patricia Inventory on an economical and practical basis, only those indices related directly to fish production were retained. Analyses for chloride ion and sulphate ion will be omitted because the former cannot be correlated as having any direct effect on the biology of waters, and the latter had little if any value in assessing waters for fish productivity. Total nitrogen, while useful as an index of fish productivity, was eliminated from the proposed surveys because the general distribution pattern of nitrogen concentrations was similar to those of total phosphorus, and total nitrogen determinations were time consuming and consequently expensive to make. A rough conversion factor of 1:10 can be employed in estimating total nitrogen when total phosphorus is known. This relationship varies, but can be applied over a large number of samples.

Application and Methods

The application of the chemical analysis of waters as presently employed by Minnesota would be modified to meet the needs of the Patricia Inventory. The Patricias should first be broken down into geological units. To begin, a representative lake in each geological unit is selected, and one-quart water samples taken from the surface of each of these lakes at each two-week interval. It would be desirable if several samples could be taken simultaneously from the epilimnion of larger lakes, (e.g. Big Trout, Deer), at two-week intervals, trying to obtain the samples from different geological and ecological units of the lakes. These water samples should be immediately preserved at the rate of 12.5 ml. of chloroform per quart of water. A label affixed to the outside of the bottle will state the name of the lake, the location of the particular station, and the date the sample was taken. Oxygen determinations will not be made from this water sample, but should be taken from a Kemmerer bottle.

The water samples can be analyzed on the spot for total alkalinity, the remainder being shipped to a laboratory for analysis of total phosphorus. At the end of one summer, a minimum standard will have been obtained for assessing the fertility of lakes in each of the geological units. In future years spot analyses taken in other lakes during midsummer, when chemical characteristics are stabilized, will fill in the remaining data needed to draw isobars of chemical fertility and hence, potential biological productivity. To assess individual lakes of their fertility expressed in terms of total alkalinity and total phosphorus, it would be desirable to maintain a series of samples taken once every two weeks during the course of

the summer following the first stratification after spring overturn, and continuing until the first signs of fall overturn. Lakes which do not stratify should be sampled in accordance with the dynamics of neighbouring stratified lakes to obtain uniformity. Once the mean water quality and fertility of a lake is expressed in parts per million of total alkalinity and total phosphorus, we have established a standard which can be compared with other lakes in the area or which have been previously described in the literature.

Correlating the Results

In order to be useful, chemical water quality and fertility expressed in terms of total alkalinity and total phosphorus must be correlated with other limitations of biological productivity. The more important of these are as follows:

1. Chemical fertility.
2. Morphometry of lake basin.
3. Length of growing season.
4. Species composition.
5. Success of reproduction.

These five variables can be interrelated to obtain a relative productivity in terms of so many pounds of fish per acre of water. An even more realistic figure, and one that can be used to compare fish productivity on an absolute basis, is the expression of productivity in pounds per acre foot of water. On lakes where an intensive population study has been made, chemical productivity can give an absolute correlation when compared with the standing crop of fish present, and hence, quotas to regulate the fishery can be established on a firmer basis than previously.

The morphometry of the lake basin will be arrived at through the use of echo sounders and used as an additional index of fish production (Rounsefel, 1946) and (Rawson, 1952). In general, the relationship between lake morphometry and chemical productivity is cause and effect. Deeper lakes generally possess less littoral zone, have a harder and less soluble substratum, and have less substratum surface area per unit of water.

The length of the growing season will certainly affect the productivity of lakes for certain fish species. The growing season can be assessed by a study of the limnology and hydrography of the lake and by a study of annulus formations on fish scales. It is expected that the length of the growing season can be expressed as a coefficient which in turn will modify the value of the chemical fertility.

Species composition of any given lake, both qualitative and quantitative, is a necessary item which must be assessed before any prediction as to production can be made, based on chemical fertility. This information is obtained through standardized net sets and a study of catch per unit effort from the same.

Success of reproduction might be an important factor in limiting fish populations in northern areas, especially if the growing season is short. Commercial fisheries could reduce populations of fish until they become dependent entirely on one year class for their annual harvest. A failure of a year class because spawning occurs only once every two years or because of some climatic factor, could be catastrophic to the fishery. Ability of fish species to reproduce successfully each year will have to be assessed and the result used to weigh any productivity index which might have been predetermined.

Techniques

Techniques for water analysis can be found in Dobie and Moyle (1956), Moyle and Burrows (1954), and American Public Health Association (1936).

Total alkalinity can be measured in parts per million calcium carbonate using either the methyl orange or the brom cresol green methods. The latter method provides a sharper end point for titration and is generally preferred. In most instances total alkalinity can be determined in the field.

Total phosphorus determinations are more difficult and should take place in a laboratory. The final determination can use either a colorimeter or a spectrophotometer. The latter instrument is rather expensive, but is more than justified by the accurate results obtained and the saving of a good deal of time which is otherwise used up in the preparation of colour standards for each analysis using a colorimeter.

Costs

In Minnesota, one graduate chemist is maintained full time to do all water chemical analyses, soil chemical analyses, flesh composition analyses, and other chemical determinations. This chemist is able to keep abreast of all the lake and pond surveys conducted in the State each year as well as conduct additional work in chemistry where required. The laboratory in Minnesota was originally equipped for a total of $3,500.00 and requires about $7,000.00 per year to pay the wages of the chemist and supply additional equipment and reagents. In their laboratory are included several expensive items such as a spectrophotometer, a Kjeldahl still, a Nesslerizer, a distilled water still, a centrifuge, and a digestor. For total phosphorus determinations, some of the above items are not required, and others can be substituted with cheaper apparatus. We would recommend that at least a spectrophotometer, a distilled water still, and a suitable digestor be purchased. All this equipment, plus required glassware, could be purchased for well under $1,500.00. A graduate chemist would not be required, but only a capable technician working part-time on water analyses. The total outlay, providing a suitable lab was available, would not amount to more than $3,000.00 the first year. If these

techniques were extended on a province-wide basis, hiring of a full-time chemist or technician would probably be justified. Once established, maintenance of the laboratory would be reasonable, the wages of the chemist or technician each year being the one expensive item.

Conclusions

Water quality, as expressed in terms of total alkalinity, and water fertility, expressed as total phosphorus, are two of the best indices of lake productivity we have today. Knowing these two indices, we can predict pounds per acre sustainable harvest rate of a standing crop of fishes. The relationship of total phosphorus to production in terms of fish approaches a straight line, that of total alkalinity, a parabolic curve. Once these indices are established, predictions may be made regarding productivity in terms of fishes, providing the four other previously mentioned variables are calculated - lake morphometry, species composition, length of growing season, and success of spawning. These latter variables are usually obtained, at least in part, during routine lake surveys. The additional water sample required gives a large return for the small additional effort. It seems imperative that we do not neglect these techniques in our evaluation of lakes in Ontario. In Minnesota they have settled on this system only after more than fifteen years of lake surveys using organized survey crews and various techniques. The method has stood the test of time and realizing its limitations can procure for us the greatest amount of knowledge pertaining to the fish productivity of a lake, for the least amount of effort expended.

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WINTER FISHING FOR SPECKLED TROUT IN THE NORTHERN REGION DURING WINTER OF 1958

by
N. D. Patrick

Abstract

The objective of this project was to establish a short-term experimental winter fishery for speckled trout in lakes where they do not reproduce in order to assess the effectiveness of winter angling as a management tool. Twelve "non-reproducing" speckled trout lakes were opened to angling on an experimental basis during the period January 1st to April 30, 1958. From creel census data obtained estimates were made of total fishing effort and total harvest. It was found that the winter angling did not result in an undue harvest of trout. Angling success was generally poor although several of the lakes had good populations of trout. The results indicated that winter angling for speckled trout in lakes where they do not reproduce should be given full consideration as a management method.

This project is in reality a Regional Project for the Northern Region and was prepared and carried out as directed by the Northern Region Fish and Wildlife Committee. It has been written up as a Swastika Project since the terms of reference of the Regional Committee have been altered. Much of the work carried out in the project was done by Cochrane District staff, and it was the Conservation Officers of both Districts who collected the data involved.

During the development of the Regional Fish Management Programme in 1956 and 1957, the problem of properly managing non-reproducing pot-hole speckled trout lakes was discussed. Since this type of water is entirely dependent on hatchery plantings, the closed season restrictions seem to have little function, and any means of increasing the return of planted fish to the anglers creel is worth investigation.

Many persons, including our own staff, have long felt that winter angling for this species was disastrous, and often poor summer angling has been blamed on the illegal activities of one or two parties fishing the lake in the winter. This project was prepared to provide more information on winter angling for speckled trout.

Objective:

To establish a short-term experimental winter fishery for speckled trout in lakes where they do not reproduce in order to assess the effectiveness of winter angling as a management tool.

Method:

A series of 12 "non-reproducing" speckled trout lakes were opened to angling on an experimental basis during the period January 1st to April 30th, 1958. During the time these lakes were open, creel census data were obtained for the various days of the week during the four months the lakes were open. From these data, estimates of total fishing effort and total harvest were made.

Observations:

The twelve lakes opened are listed in Table I. Unfortunately, the creel census data* collected have definite limitations, but they are adequate to demonstrate the effectiveness of winter angling in the lakes in question. Table I shows estimates of fishing pressure and harvest based on the data collected, and it can be seen that even the best lake (Fisher Lake in German Township) produced less than one fish per fishing trip. The project provided an estimated minimum number of 3,174 fishing trips, and although there were some men who made many trips, there were probably close to 1,000 persons involved.

TABLE I - Creel Census Data For Speckled Trout Lakes Open To Angling, January 1st to April 30th, 1958.

Lake	Township	Estimated Total Fishing Trips	Est. Catch Speckled Trout	Est. Catch Lake Trout	Number of Trips/ Fish
Wilson	Lebel)	142	17	0	8.4
Jordan	Lebel)				
Andrew	McCann	183	65	0	2.8
Fraser	Willison	97	13	0	7.5
Horseshoe	Dundonald	313	145	8	2.0
Horseshoe	Mountjoy	172**	8	4	14.3
Blue	Clute	410***	85	20	3.9
Green	Colquhoun	397***	106	0	3.7
Wiskin	Colquhoun	73	15	0	4.9
Devil's Punch Bowl	Calvert	492	167	0	2.9
Fisher	German	895	649	2	1.4
West Twin	German	-	-	-	-
TOTAL		3174	1270	34	2.4
TOTAL LESS FISHER LAKE		2279	621	32	3.5

** These are actual creel data obtained - data were not adequate for estimate.

*** Estimate for all but month of February for these lakes. February data entered as actual creel obtained.

* This was the first time field officers had done this type of work, and the data collected were good under the circumstances.

Very little comparable creel census data are available for the period following May 1st, but they seem to indicate that two of the lakes at least showed an improvement after the winter angling effort. In Andrew Lake, 37 trips produced 32 fish, while in Fraser Lake, four trips produced one fish. In Jordan and Wilson Lakes on the other hand, 44 trips produced only two fish. It should be pointed out that Wilson, Jordan, Andrew and Fraser Lakes were selected because they were known to produce poor fishing during the regular open seasons although lake surveys indicated reasonable populations of trout were available in them.

Conclusion:

It is obvious that the winter angling carried out during January - April, 1958, did not result in an undue harvest of trout. Angling success was poor in all the lakes, although several of them (Blue, Green and Wiskin for example) are excellent waters with good populations of trout. The results of this project most certainly indicate that winter angling for speckled trout in lakes where they do not reproduce should be given full consideration as a management method.

CREEL CENSUS - GOGAMA DISTRICT, 1959

by
J. E. Culliton

Abstract

Improvements in the method of collecting creel census returns in Gogama District resulted in more accurate tabulation of numbers and species of fish taken by anglers in 1959. Returns are listed by main watershed areas in order to attain a more simplified and general picture of fishing success. Three methods of obtaining an analysis of fish caught are discussed. Detailed tables giving a complete analysis for the Yellow Pickerel, the most widely fished species in the district, are presented. Data show that 1,012 anglers fished a total of 9,535 hours to catch 4,957 pickerel or each angler caught an average of 4.89 fish. In general, fewer anglers fished more hours to catch fewer fish in 1959 as compared with 1958. Summaries condensing the angling returns for Northern Pike, Speckled Trout, Lake Trout and Kamloops Trout are also given.

Creel census records were once again activated in the Gogama District during the 1959 fishing season.

Improvements made in the creel census record return slip resulted this year in more accurate tabulation of numbers and species of fish taken by anglers. It is apparent however, that more improvements will have to be realized before highly accurate levels of records can be compiled.

Rather than tabulate individual information on all the various small, interconnected lakes and streams in the district, it has been successfully attempted to break the returns down and form an overall picture of the main watershed areas. In doing this, a more simplified and general report on the fishing success of the district can be seen.

Some major difficulties hindering accurate analysis presented themselves as the Creel Census Report was embarked upon. One item which introduces distortion of the returns, is simultaneous angling for two or more species of fish by a party. We have attempted to rectify this and arrive at a base for our calculations by the following simple method:

(a) Where a party is fishing for Pickerel and Pike simultaneously:
Where a party of two anglers fished three hours and caught 12

pickerel and six pike, we have considered the party to have been fishing their total man hours for both species, rather than for one in preference to another. Therefore, in this instance the party caught 12 pickerel with a total of six man hours (or two pickerel per man hour); and caught six pike with a total of six man hours, (or one pike per man hour). This is not, as first appearances indicate, doubling up on the hours, but merely the application of the hours fished directly to each species.

(b) For those parties who recorded no catch of either species in pickerel and pike waters, it was assumed that they were fishing for pike and pickerel simultaneously, and their hours were applied as in (a).

Weather Conditions

The weather throughout the 1959 fishing season was judged to be generally better than the previous year. May provided us with cool weather until around the 18th, at which point warm weather prevailed into June. June was generally warm with average rainfall persisting. July was cooler at the start than late June, but warmed up towards the end. August was our dampest month, starting out warm and dry, but wetting the district well before retiring into September. An average of 4.41 inches of rainfall fell in the district during August, the bulk of it at Gogama and Elsas, leaving Foleyet area relatively dry. Early September was warm but following the 10th, cool and wet weather prevailed, snow falling in Foleyet on the 15th.

Table I deals exclusively with the Yellow Pickerel or Yellow Walleye, (Stizostedion vitreum) which is the prize of many anglers. The summary of pickerel 1959 (Table I (e)) draws some interesting conclusions. We see that 1,012 anglers fished a total of 9.535 hours to catch 4,957 pickerel. This gives each angler an average of 4.89 fish, which is .81 fish per angler higher than last years record indicates. Our seasonal average of .93 fish per man hour is slightly lower than the average of 1.00 recorded last year. In general, fewer anglers fished more hours to catch fewer fish in 1959 as compared with 1958.

Table I (a) breaks the overall picture down to the individual waterways, and once again some interesting totals can be observed regarding the number of fish released as opposed to those retained.

It is noteworthy to compare, at this point, the various species in the report, observing the differences in the ratio of fish released to fish retained for each species. Looking at pickerel and pike, it is seen that more pickerel were kept per total fish caught than in the pike records. The Speckled Trout and Lake Trout tables indicate that these species were retained except where size rendered them useless as food. The Lake Trout totals indicate that 100% of the fish caught were retained. This leads to substantiate the opinion that although Northern Pike are desirable as a game fish, they are generally not retained for food purposes by those parties who fish pickerel and pike simultaneously.

Table I (b) breaks the hours fished for pickerel down, and renders an accurate seasonal account of fishing pressure in man hours per month.

Table I (c) analyzes the total pickerel caught during the fishing season, indicating the months of highest catch. A point of note here is that the month of highest catch (2455 pickerel in June) was one of our good weather months with average rainfall for that time of year.

Table I (d) once again gives us a good idea of fishing pressure by offering a monthly breakdown of anglers. This table too, serves to indicate clearly the lakes in the district that are fished the heaviest. Minisinakwa Lake, with a total of 213 pickerel anglers recorded for the season leads the other lakes. This, of course is because it is in juxtaposition with Gogama, and many resident fishermen without automobiles utilize the proximity of good fishing waters.

Tables II, III, IV and V deal with Pike, Speckled Trout, Lake Trout and Kamloops Trout respectively. These tables are all broken down to sub-tables and follow in structure the description of the Pickerel, Table I.

As Ketchiwaboose Lake is the only lake in the District where the Kamloops Trout is known to abound, we have not endeavoured to draw any conclusions as to fishing pressure etc. Table V will supply all the information required re this species for this report and, at a future date more complete data can be compiled.

Summary

At the onset of this report, it was our hope that a good cross-sectional picture of fish harvested by anglers in the district could be obtained. Unfortunately however, another difficulty was encountered as the work progressed.

On some of our lakes, (because of the receipt of increased number of creel census returns) we have a better picture of fish harvested. On the other hand we have waterways in which anglers were present but for which little or no records have been submitted. This appears to leave three alternative methods of obtaining an analysis of fish removed:

(a) Base the final figure only on the lakes from which large quantities of returns were obtained.

(b) Take into consideration all the lakes for which we have records, including the lakes for which returns indicate no fish caught, (although fish are known to be present).

(c) Mathematical analysis utilizing our most accurate records and using the method of interpolation.

The most accurate and highly desirable of the above would be (c). In this method, areas of lakes could be taken into account and a figure of fish harvested derived per area unit. This figure, combined with its area unit, could then be applied to the other waterways in the district, and a final figure thus obtained. This system could be attempted at a future date when the necessary information on our lake areas is compiled by the Lake Survey Program.

The method described in (a) will not, of course, give us either as accurate or as general a figure as is desired.

For the present report it has been deemed sufficient that the second alternative, (b) be used, and from this basis our tables have been totalled.

TABLE I (a) - Yellow Pickerel (*Stizostedion vitreum*)

Name of Lake	No. Fish Released	No. Fish Retained	Total Caught	No. of Anglers	No. of Man Hours	No. Pickerel Per Man Hour
Mattagami L.	172	331	503	117	732	.70
Minisinakwa L.	213	490	703	213	615	1.14
Mesomikenda L.	652	360	1012	155	5027	.20
Grassy River	114	207	321	80	486	.66
Okawakenda L.	620	237	857	80	408	2.10
Michiwakenda L.	10	68	78	26	319	.24
Ivanhoe L.	28	63	111	31	341	.32
Horwood L.	42	110	152	27	192	.79
Upper Kenotogami L.	0	10	10	5	10	1.00
Groundhog L.	0	97	97	31	135	.71
Sinclair L.	42	43	85	32	210	.40
Kapiskong L.	121	56	177	35	172	1.00
Kapuskasing L.	0	91	91	34	54	1.66
Wasapika L.	3	32	35	9	39	.89
Bonar L.	0	4	4	4	16	.25
Chris L.	11	30	41	9	45	.88
Dumbell L.	5	8	13	4	8	1.62
Groundhog River	0	17	17	5	23	.73
Loonwing L.	11	29	40	12	76	.52
Stetham L.	8	20	28	12	54	.52
Nemagosenda L.	0	33	33	21	36	.89
Saville L.	14	27	41	5	25	1.64
Shinners L.	150	121	271	5	160	1.63
Mound L.	0	32	32	15	81	.39
Somme L.	50	3	53	2	28	1.89
Claw River	5	12	17	2	4	4.22
White Duck L.	0	15	15	4	20	.75
Scorch L.	0	8	8	2	10	.80
Nabakwasi River	0	6	6	4	20	.30
Singed Tree L.	0	4	4	3	12	.33
Kenogamissi L.	15	8	23	2	12	1.91
Blair L.	0	12	12	2	12	1.00
Makami River	0	21	21	4	10	2.10
Ferris Lake	9	9	18	9	46	.39
Shoofly L.	0	4	4	7	29	.13
Kasaway L.	0	12	12	2	60	.20
Nursey L.	0	12	12	2	8	1.50
TOTAL	2315	2642	4957	1012	9535	34.40

TABLE I (b) - Pickerel Man Hours 1959 Season

Name of Lake Or Stream	May	June	July	August	Sept.	Totals
Minisinakwa Lake	154	201	99	161	-	615
Mattagami Lake	51	182	253	246	-	732
Mesomikenda Lake	114	3207	1078	596	32	5027
Grassy River	-	217	229	-	40	486
Okawakenda Lake	8	138	130	78	54	408
Michiwakenda Lake	259	30	18	-	12	319
Ivanhoe Lake	4	273	36	16	12	341
Horwood Lake	30	48	114	-	-	192
Upper Kenotogami Lake	-	10	-	-	-	10
Groundhog Lake	48	15	-	72	-	135
Kapiskong Lake	-	128	44	-	-	172
Sinclair Lake	75	24	95	16	-	210
Kapuskasing Lake	25	29	-	-	-	54
Wasapika Lake	-	-	-	18	21	39
Bonar Lake	-	-	16	-	-	16
Chris Lake	-	-	-	-	45	45
Dumbell Lake	3	5	-	-	-	8
Groundhog River	-	22	1	-	-	23
Loonwing Lake	16	60	-	-	-	76
Stetham Lake	-	-	54	-	-	54
Nemagosenda Lake	-	22	14	-	-	36
Saville Lake	-	-	25	-	-	25
Shinners Lake	-	160	-	-	-	160
Mound Lake	-	73	8	-	-	81
Somme Lake	-	-	-	28	-	28
Claw River	4	-	-	-	-	4
White Duck Lake	-	20	-	-	-	20
Scorch Lake	10	-	-	-	-	10
Nabakwasi River	20	-	-	-	-	20
Singed Tree Lake	12	-	-	-	-	12
Kenogamissi Lake	-	12	-	-	-	12
Blair Lake	12	-	-	-	-	12
Makami River	-	-	10	-	-	10
Ferris Lake	-	4	42	-	-	46
Shoofly Lake	9	20	-	-	-	29
Kasaway Lake	-	60	-	-	-	60
Nursey Lake	-	-	8	-	-	8
Totals	854	4960	2274	1231	216	9535

TABLE I (c) - Pickerel Caught 1959 Season

Name of Lake Or Stream	May	June	July	August	Sept.	Totals
Minisinakwa Lake	179	368	68	89	-	703
Mattagami Lake	38	196	127	142	-	503
Mesomikenda Lake	90	539	244	115	24	1012
Grassy River	-	180	125	-	16	321
Okawakenda Lake	78	383	216	160	20	857
Michiwakenda Lake	49	8	16	-	5	78
Ivanhoe Lake	8	97	4	2	-	111
Horwood Lake	39	76	37	-	-	152
Upper Kenotogami Lake	-	10	-	-	-	10
Groundhog Lake	20	2	-	75	-	97
Kapiskong Lake	-	135	42	-	-	177
Sinclair Lake	10	1	70	4	-	85
Kapuskasing Lake	74	17	-	-	-	91
Wasapika Lake	-	-	-	21	14	35
Bonar Lake	-	-	4	-	-	4
Chris Lake	-	-	-	-	41	41
Dumbell Lake	3	10	-	-	-	13
Groundhog River	-	12	5	-	-	17
Loonwing Lake	7	33	-	-	-	40
Stetham Lake	-	-	28	-	-	28
Nemagosenda Lake	-	31	2	-	-	33
Saville Lake	-	-	41	-	-	41
Shinners Lake	-	271	-	-	-	271
Mound Lake	-	31	1	-	-	32
Somme Lake	-	-	-	53	-	53
Claw River	17	-	-	-	-	17
White Duck Lake	-	15	-	-	-	15
Scorch Lake	8	-	-	-	-	8
Nabakwasi River	6	-	-	-	-	6
Singed Tree Lake	4	-	-	-	-	4
Kenogamissi Lake	-	23	-	-	-	23
Blair Lake	12	-	-	-	-	12
Makami River	-	-	21	-	-	21
Ferris Lake	-	3	15	-	-	18
Shoofly Lake	2	2	-	-	-	4
Kasaway Lake	-	12	-	-	-	12
Nursey Lake	-	-	12	-	-	12
Totals	643	2455	1078	661	120	4957

TABLE I (d) - Pickerel Anglers 1959 Season

Name of Lake Or Stream	May	June	July	August	Sept.	Totals
Minisinakwa Lake	53	77	32	51	-	213
Mattagami Lake	15	50	31	21	-	217
Mesomikenda Lake	20	50	56	25	4	155
Grassy River	-	31	45	-	4	80
Okawakenda Lake	2	31	24	11	12	80
Michiwakenda Lake	11	7	5	-	3	26
Ivanhoe Lake	4	15	5	4	3	31
Horwood Lake	7	9	11	-	-	27
Upper Kenotogami Lake	-	5	-	-	-	5
Groundhog Lake	8	3	-	20	-	31
Kapiskong Lake	-	23	12	-	-	35
Sinclair Lake	7	17	4	4	-	32
Kapuskasing Lake	22	12	-	-	-	34
Wasapika Lake	-	-	-	-	5	9
Bonar Lake	-	-	4	-	-	4
Chris Lake	-	-	-	-	9	9
Dumbell Lake	2	2	-	-	-	4
Groundhog River	-	4	1	-	-	5
Loonwing Lake	3	9	-	-	-	12
Stetham Lake	--	-	12	-	-	12
Nemagosenda Lake	-	14	7	-	-	21
Saville Lake	-	-	5	-	-	5
Sinnners Lake	-	5	-	-	-	5
Mound Lake	-	13	2	-	-	15
Somme Lake	-	-	-	2	-	2
Claw River	2	-	-	-	-	2
White Duck Lake	-	4	-	-	-	4
Scorch Lake	2	-	-	-	-	2
Nabakwasi River	4	-	-	-	-	4
Singed Tree Lake	3	-	-	-	-	3
Kenogamissi Lake	-	2	-	-	-	2
Blair Lake	2	-	-	-	-	2
Makami River	-	-	4	-	-	4
Ferris Lake	-	2	7	-	-	9
Shoofly Lake	3	4	-	-	-	7
Kasaway Lake	-	2	-	-	-	2
Nursey Lake	-	-	2	-	-	2
Totals	170	391	269	142	40	1012

TABLE I (e) - Summary of Pickerel Angling 1959 Season.

(1)	Total number of man hours spent	9535
(2)	Total number of pickerel caught per man hour	.52
(3)	Average number of pickerel caught per man hour	.93
(4)	Number of pickerel caught per 100 hours angling	52
(5)	Total number of pickerel released	2315
(6)	Total number of pickerel retained	2642
(7)	Total number of pickerel caught	4957
(8)	Total number of pickerel anglers	1012
(9)	Average number of pickerel per angler	4.89

TABLE II - Summary of Northern Pike Angling 1959 Season *

(1)	Total number of man hours fished by pike anglers	7206
(2)	Total number of pike per man hour	.22
(3)	Average number of pike per man hour	.62
(4)	Number of pike per 100 hours fished by anglers	22
(5)	Total number of pike released	1011
(6)	Total number of pike retained	540
(7)	Total number of pike caught by anglers	1551
(8)	Total number of anglers	721
(9)	Average number of pike per angler	2.14

* Lengthy tables concerning various lakes were included in the original report.

TABLE III - Summary of Speckled Trout Angling 1959 Season

(1)	Total number of hours fished by speckled trout anglers	3982
(2)	Total number of speckled trout per man hour	.12
(3)	Average number of Speckled Trout per man hour	.69
(4)	Number of Speckled Trout caught per 100 hours of angling.	12
(5)	Total number of Speckled Trout released	40
(6)	Total number of Speckled Trout retained	419
(7)	Total number of Speckled Trout caught by anglers	459
(8)	Total number of Speckled Trout anglers	189
(9)	Average number of Speckled Trout per angler	2.43

TABLE IV - Summary of Lake Trout Angling 1959 Season.

(1)	Total number of hours fished by Lake Trout Anglers	646
(2)	Total number of Lake Trout per man hour	.17
(3)	Average number of Lake Trout per man hour	.19
(4)	Number of Lake Trout caught per 100 hours of angling	.17
(5)	Total number of Lake Trout released	0
(6)	Total number of Lake Trout retained	110
(7)	Total number of Lake Trout caught	110
(8)	Total number of Lake Trout anglers	54
(9)	Average number of Lake Trout per angler	2.04

TABLE V - Kamloops Trout

Ketchiwaboose Lake:

No. Fish Released	No. Fish Retained	Total Fish Caught	No. of Anglers	No. of Man Hrs.	No. of Kamloops Trout Per Man Hr.
57	55	112	19	219	.51

Fishing Pressure By Man Hours:

	May	June	July	August	Total
Number of man hours	18	18	48	135	219

Fishing Pressure By Number of Anglers:

	May	June	July	August	Total
Number of anglers	2	3	5	9	19

Fish Harvested Per Month:

	May	June	July	August	Total
Number of fish caught	12	21	49	30	112

N. B. This lake is the only lake in the District where the Kamloops Trout is known to abound.

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